

**ABSTRACT**

A stack (12) of a polymer electrolyte fuel cell (10) is immersed, in a stack container case (14), in a liquid coolant (108) such as an organic solvent, and the stack is operated in this state. The stack (12) whose temperature has risen by heat energy produced by the operation is cooled by the liquid coolant (108). The liquid coolant (108) which has cooled the stack (12) vaporizes, and is condensed by a condenser (16). Then, the liquid coolant returns to the stack container case (14).